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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,833	06/01/2004	Xing LI	119021	3832
27074 7590 02/08/2008 OLIFF & BERRIDGE, PLC. P.O. BOX 320850 ALEXANDRIA, VA 22320-4850				
			EXAMINER WOLDEMARIAM, AKILILU K	
			ART UNIT 2624	PAPER NUMBER
			NOTIFICATION DATE 02/08/2008	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

OfficeAction27074@oliff.com  
jarmstrong@oliff.com

## Office Action Summary

Application No.

10/709,833

Applicant(s)

LI ET AL.

Examiner

Aklilu k. Woldemariam

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Amendment*

1. Applicant's amendment filed on November 16, 2007 has been entered. Claims 1, 3-6, 8, 10 and 13 have been amended. Claims 1-22 are still pending, with claims 1, 8 and 15 being an independent.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Fan et al. "Fan" (U.S. Publication 2003/0072487 A1)

Regarding claims 1 and 8, *Fan discloses* a pixel classification method and a pixel classification apparatus, comprising:

determining a background intensity level of an image, the background intensity level being based on substantially all of the pixels of the image (*see item 304, fig.3 and column 2, paragraph [0017] lines 7-9, i.e., background intensity level of an image referred a main background is identified 304*);

classifying a pixel of the image and without adjusting an intensity of the pixel (*see item 306, fig.3 and column 2, paragraph [0017] lines 9-10, classified 306*);

confirming the classification of the pixel based on the determined background intensity level of the image by comparing the intensity of the pixel with the determined background intensity level (*see item 412, fig.10 and column 4, paragraph [0035] when the option 412 is implemented, a background uniformity test*);

determining if reclassification is required (*see item 412, fig.4 and column 2, paragraph [0019] reclassification as a picture object 412*); and

reclassifying the pixel when reclassification is required (*see item 412, fig.4 and column 2, paragraph [0019] reclassification as a picture object 412*).

4. Claims 15, 16 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Fan et al. "Fan" (U.S. Patent number 5, 850, 474).

Regarding claim 15, *Fan discloses an image processing method, comprising: determining a background intensity level of an image, the background level being based on substantially all of the pixels of the image (see column 3, lines 14-17, i.e., background intensity level referred to intensity information).*

*classifying a pixel of the image (see items 46, fig.4 and column 5, lines 31-33, i.e., classifying a pixel of the image referred to pixels within each window and classification means 46 for classifying each of the windows).*

*checking the classification of at least a portion of the pixels of the image based on the determined background intensity level of the image (see column 6, lines 13-16, i.e., checking the classification referred confidence factor is determined for each of the image runs).*

reclassifying pixels based on results of the checking step (*see item 77, fig.8 and column 7, lines 6-10, reclassification means 77 for re-classifying images*); and processing image data of the pixels of the image based on the classification of the pixels (*see column 6, lines 14-16, i.e., processing image data referred to when the process proceeds*).

Regarding claim 16, *Fan discloses* the image processing method of claim 15, further comprising storing a label associated with each of substantially all of the pixels, wherein the label of each of substantially all of the pixels is based on results of the classification step and the checking step for the pixel (*see column 4, lines 10-20 and column 5, lines 10-13, i.e., storing referred to recording during labeling and checking step referred to first pass and second pass*).

Regarding claim 22, *Fan discloses* the image processing method of claim 15, wherein the portion of the pixels comprises substantially all of the pixels of the image (*see column 1, line 66-column 2, and lines 3, i.e., portion of pixels referred to portion of a page of images*).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2-6, 9, 10 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fan as applied to claims 1 and 8, above in view of Li et al. (U.S. Patent number 6, 360,009 B2).

Regarding claims 2 and 9, Fan discloses the pixel classification method and the pixel classification apparatus (*see items 310 and 312, fig.3, classification*) of claims 1 and 8.

Fan does not disclose the determining step comprises determining a white point of the image based on at least one characteristic of substantially all of the pixels of the image.

However, Li discloses the determining step comprises determining a white point of the image based on at least one characteristic of substantially all of the pixels of the image (*see fig.2, white detection*).

It would have been obvious to the ordinary skill in the art at the time when invention was made to use determining a white point of the image Fan's pixel classification because it will allow to achieve optimal image quality in document reproduction, a system capable of automatically identifying different types of images within a page is needed, [*Li, see column 1, lines 30-32*].

Regarding claims 3 and 10, Fan discloses the pixel classification method and the pixel classification apparatus (*see items 310 and 312, fig.3, classification*) of claims 2 and 9.

Fan does not disclose the confirming step comprises comparing and the intensity of the pixel with an intensity of the white point of the image.

However, Li discloses the confirming step comprises comparing the intensity of the pixel with an intensity of the white point of the image (*see column 7, line 59-column 8, line 10 and column 8, lines 30-40, comparing the intensity referred to threshold*).

Regarding claim 4, *Fan discloses the pixel classification method of claim 3, comprising wherein the reclassifying step includes\_reclassifying the pixel as background when the pixel is classified as a class eligible to be reclassified (see item 412, fig.4 and column 2, paragraph [0019] reclassification as a picture object 412).*

Fan does not disclose the intensity of the pixel is not less than the intensity of the white point of the image.

However, Li discloses the intensity of the pixel is not less than the intensity of the white point of the image (*see column 7, line 59-column 8, line 10 and column 8, lines 30-40, comparing the intensity referred to threshold*).

Regarding claim 5, *Fan discloses the pixel classification method of claim 3, comprising wherein the reclassifying step includes\_reclassifying the pixel as one of smooth contone and an equivalent class when the pixel is classified as background (see item 412, fig.4 and column 2, paragraph [0019] reclassification as a picture object 412)*

Fan does not disclose the intensity of the pixel is less than the intensity of the white point of the image.

However, Li discloses the intensity of the pixel is less than the intensity of the white point of the image (*see column 7, line 59-column 8, line 10 and column 8, lines 30-40, comparing the intensity referred to threshold*).

Regarding claims 6 and 13, *Fan discloses the pixel classification method and the pixel classification apparatus of claims 1 and 8 (see items 310 and 312, fig.3).*

Fan does not disclose the determining step comprises identifying a spread of intensity levels of substantially all the pixels of the image and determining an intensity level of a majority of the pixels.

Li discloses the determining step comprises identifying a spread of intensity levels of substantially all the pixels of the image and determining an intensity level of a majority of the pixels (*see column 7, line 59-column 8, line 10 and column 8, lines 30-40, comparing the intensity referred to threshold*).

Regarding claim 11, *Fan discloses the pixel classification apparatus of claim 10, wherein when a pixel is classified as a class eligible to be reclassified (see item 412, fig.4 and column 2, paragraph [0019] reclassification as a picture object 412.*

Fan does not disclose the intensity of the pixel is not less than the intensity of the white point of the image; the pixel is reclassified as background.

However, Li discloses the intensity of the pixel is not less than the intensity of the white point of the image, the pixel is reclassified as background (*see column 3, lines 31-36, i.e., less than the intensity of the white point referred to white threshold*).

Regarding claim 12, *Fan discloses the pixel classification apparatus of claim 10, wherein when a pixel is classified as background ((see item 306, fig.3 and column 2, paragraph [0017] lines 9-10, classified 306).*

Fan does not disclose the intensity of the pixel is less than the intensity of the white point of the image, the pixel is reclassified as smooth contone.



However, Li discloses the intensity of the pixel is less than the intensity of the white point of the image, the pixel is reclassified as smooth contone (*see column 3, lines 31-36, i.e., less than the intensity of the white point referred to white threshold*).

8. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fan as applied to claim 15, above in view of Li et al. "Li" (U.S. Patent number 6,360,009 B2).

Fan discloses pixel classification.

Fan does not disclose classifying a pixel of the image comprises classifying the pixel as one of smooth contone, rough contone, text, background, graphics and halftone.

However, Li discloses regarding claim 17, the image processing method of claim 15, wherein classifying a pixel of the image comprises classifying the pixel as one of smooth contone, rough contone, text, background, graphics and halftone (*see column 3, line 60- column 4, lines 1-8, classifying the pixel as one of referred to classification table*).

It would have been obvious to the ordinary skill in the art at the time when invention was made to use Li's classifying a pixel of the image comprises classifying the pixel as one of smooth contone, rough contone, text, background, graphics and halftone in Fan's pixel classification because it will allow to achieve optimal image quality in document reproduction, a system capable of automatically identifying different types of images within a page is needed, [*Li, see column 1, lines 30-32*].

9. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fan as applied to claim 15, above in view of Li et al., "Li" (U.S. Patent number 6,

360, 009 B2).

Fan discloses pixel classification in claim 15.

Fan does not disclose determining a white point of image.

However, Li discloses regarding claim 18, the image processing method of claim 15, wherein the determining step comprises determining a white point of the image based on a characteristic of substantially all of the pixels of the image (*see fig.2, detection white and column 7, lines 59-column 8, lines 10*).

It would have been obvious to the ordinary skill in the art at the time when invention was made to use determining a white point of the image Fan's pixel classification because it will allow to achieve optimal image quality in document reproduction, a system capable of automatically identifying different types of images within a page is needed, [*Li, see column 1, lines 30-32*].

Regarding claim 19, *Li discloses* the image processing method of claim 18, wherein the checking step comprises comparing an intensity of the pixel with an intensity of the white point of the image (*see fig.2, detection white and column 7, lines 59-column 8, lines 10*).

10 Claims 7 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fan as applied to claim 1, above in view of Li (U.S. Patent number 6,360, 009 B2).

Fan discloses pixel classification.

Fan does not disclose the pixel classified as smooth contone.

However, Li discloses regarding claim 7, the pixel classification method of claim 4, wherein the pixel is classified as smooth contone (*see column 4, lines 2-8, smooth contone referred to smooth continuous tone*).

It would have been obvious to the ordinary skill in the art at the time when the invention was made to use Li's pixel classified smooth contone in Fan pixel classification because it will allow to achieve optimal image quality in document reproduction; a system capable of automatically identifying different types of images within a page is needed, [*Li, see column 1, lines 30-32*].

Regarding claim 14, *Li discloses* the pixel classification apparatus of claim 11, wherein the pixel is classified as one of smooth contone and an equivalent class (*see column 4, lines 2-8, smooth contone*).

11. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fan as applied to claim 15 above in view of Li (U.S. Patent number 6,360, 009 B2).

Fan discloses pixel classification.

Fan discloses he pixel classified as smooth contone.

However, Li discloses regarding claim 20, *Li discloses* the image processing method of claim 19, wherein when the pixel is classified as smooth contone (*see column 3, line 60-column 4, line 8*) and the intensity of the pixel is not less than the intensity of the white point of the image, the pixel is reclassified as background (*see fig.2, white detection and column 8, lines 32-39, i.e., not less than the intensity of the white point of the image referred to threshold for peak detection*).

It would have been obvious to the ordinary skill in the art at the time when the invention was made to use Li's pixel classified smooth contone in Fan pixel classification because it will allow to achieve optimal image quality in document reproduction, a system capable of automatically identifying different types of images within a page is needed, *[Li, see column 1, lines 30-32]*.

Regarding claim 21, *Li discloses* the image processing method of claim 19, wherein when the pixel is classified as background and the intensity of the pixel is less than the intensity of the white point of the image, the pixel is reclassified as smooth contone (*see fig.2, white detection, column 3, line 60-column 4, line 8 and column 8, lines 32-39, i.e., not less than the intensity of the white point of the image referred to threshold for peak detection*).

### ***Response to Arguments***

12. Applicant's arguments filed on November 16, 2007 have been respectfully considered, but they are not persuasive. Regarding 35 U.S.C 103 rejection of claim 1 and 8, the applicant's argued that with references (Fan and Ahmed) do not disclose the claim invention, the examiner disagree because Fan (U.S. Patent number 5,850,474) discloses regarding claim 15,an image processing method, comprising: determining a background intensity level of an image, the background level being based on substantially all of the pixels of the image (*see column 3, lines 14-17, i.e., background intensity level referred to intensity information*).

classifying a pixel of the image (*see items 46, fig.4 and column 5, lines 31-33, i.e., classifying a pixel of the image referred to pixels within each window and classification means 46 for classifying each of the windows*).

checking the classification of at least a portion of the pixels of the image based on the determined background intensity level of the image (*see column 6, lines 13-16, i.e., checking the classification referred confidence factor is determined for each of the image runs*).

reclassifying pixels based on results of the checking step (*see item 77, fig.8 and column 7, lines 6-10, reclassification means 77 for re-classifying images*); and processing image data of the pixels of the image based on the classification of the pixels (*see column 6, lines 14-16, i.e., processing image data referred to when the process proceeds*).

Fan (U.S. Publication 2003/0072487 A1) discloses regarding claims 1 and 8, a pixel classification method and a pixel classification apparatus, comprising:

determining a background intensity level of an image, the background intensity level being based on substantially all of the pixels of the image (*see item 304, fig.3 and column 2, paragraph [0017] lines 7-9, i.e., background intensity level of an image referred a main background is identified 304*);

classifying a pixel of the image and without adjusting an intensity of the pixel (*see item 306, fig.3 and column 2, paragraph [0017] lines 9-10, classified 306*);

confirming the classification of the pixel based on the determined background intensity level of the image by comparing the intensity of the pixel with the determine background intensity level (*see item 412, fig.10 and column 4, paragraph [0035] when the option 412 is implemented, a background uniformity test*);

determining if reclassification is required (*see item 412, fig.4 and column 2, paragraph [0019] reclassification as a picture object 412*); and

reclassifying the pixel when reclassification is required (*see item 412, fig.4 and column 2, paragraph [0019] reclassification as a picture object 412*).

### **Conclusion**

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

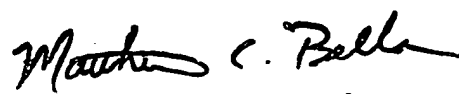
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aklilu k. Woldemariam whose telephone number is 571-270-3247. The examiner can normally be reached on Monday-Thursday 6:30 a.m-5:00 p.m EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed can be reached on 571-272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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